



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,082	12/28/2001	Dwight Randall Smith	29505/PF01994NA	2169

4743 7590 10/19/2004

MARSHALL, GERSTEIN & BORUN LLP
6300 SEARS TOWER
233 S. WACKER DRIVE
CHICAGO, IL 60606

EXAMINER

LELE, TANMAY S

ART UNIT PAPER NUMBER

2684

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,082

Applicant(s)

SMITH ET AL.

Examiner

Tanmay S Lele

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 20, 21 and 25-29 is/are rejected.
- 7) ☒ Claim(s) 16-19 and 22-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 30 June 2004 have been fully considered but they are not persuasive.

Regarding claims 9, 28, 29, 37, and 59, Applicant attempts to overcome the rejection by stating, "The Applicants state that one of ordinary skill at the time of invention would have known or been aware of at least the following items related to aspects of the current disclosure," and further cites external evidence in support of the concepts claimed as being known or aware of to one skilled in the art at the time of invention. Examiner respectfully maintains that as stated in the previous Office Action (mailed 29 March 2004), the specification does not contain a written description of the invention or a manner and process of making and using it in such a full, clear and concise, and exact terms. As stated in the previous Office Action (mailed 29 March 2004) specific reference to "...swimming mobility mechanism, and a crawling mobility mechanism..." were not described in Applicant's specification and further are not specifically referred to with respect to the specification in Applicant's remarks (filed 30 June 2004).

Applicant continues by providing external support of these concepts being known or aware to those of ordinary skill at the time of invention in the arguments as per pages 23 – 25 of the paper mailed 30 June 2004. Initially, Examiner notes that Applicant states parenthetically "(see attached IDS)," yet no such IDS was noted, nor fee included for such an IDS (as required by CFR 1.97 and 1.98). Hence, Examiner respectfully did not consider any such IDS.

Continuing, additional confusion arose over these citations as Applicant states, "This is clear evidence that one of ordinary skill in the art at the time of invention would have known about

Art Unit: 2684

micro-mechanical flying, swimming or crawling insects.” As per MPEP § 716.01 (c) and §2145, it was noted that the arguments of counsel cannot take the place of evidence in the record and that this evidence must be supported by an appropriate affidavit or declaration. Further, as Applicant stated only dates of references and made no specific admission that such were to be constituted as “Prior Art” (as per MPEP § 2129), it was not clear how these documents were to be used. Even in light of such an admission of information, Examiner respectfully maintains that as no such citations are present in Applicant’s specification (as filed 28 December 2001) and thus the rejection will be maintained as no precise support from the specification was found or specified by Applicant.

Regarding claim 24, Applicant states, “With respect to claim 24, the examiner requested clarification of when the device could end up” (it was assumed that this was in reference to the previous Office Action mailed 29 March 2004 which stated, “...where the devices would end up...”as per page 14; Examiner notes here that step (ii) was accidentally duplicated) and further that, “If the examiner means are there laminations on movement of the device implied by the specification or claims, the applicants note that the first device location is not constricted by the specification or the claims.” Applicant further cites MPEP § 2164.08 as clarification. Examiner reverently maintains that assuming mobile devices are used in Applicant’s system (as defined in the parent claim and per paragraph 0029 of the specification) a retrieval command (as per claim 24) would create a situation of continuous following of multiple self-positioning devices (as all devices are moving) and thus clarification of such was requested. Thus, Examiner is not placing limitations on the movement but more so requesting clarification because all objects are moving (ie self positioning as per the parent claim 1) and thus confusion arose over how the steps occur.

Art Unit: 2684

Regarding claim 20, Applicant attempts to overcome the rejection by stating, "Per the definitions in the MPEP § 2173.05 (b), the use of the term 'relatively' is neither vague nor indefinite since it refers to a selection having a shorter communication path defined by an existing, finite subset of the plurality of self-positioning receivers and is not relative to a prior art reference or some other undefined measure." Applicant further refers Examiner to Figure 16. Examiner respectfully maintains that confusion could occur whether the "relatively shorter communication path" was in reference to a physical distance between source and destination or a number of devices (ie number of hops) between the source and destination. For example, Figure 4 of Applicant's disclosure shows two paths between source (102) and destination (104) one with a relatively shorter communications path (physically shorter) yet with more devices (the path defined by T9 – T5) and another path with a relatively shorter communications path (based on the number of devices; the path defined by T4 – T1; note the physical communication path distance wise is longer yet the number of hops between devices less). Hence it is respectfully still not understood what constitutes a relatively shorter communications path.

Regarding claims 7 and 40, Applicant attempts to overcome the rejection by stating, "The protocol specifications listed in the claims are not trademarks reflecting a source of goods (See MPEP § 2173.05 (u)). They are industry standards carefully defining short-range communication protocols. They were at the time of invention, and remain, short range communication protocols." It is respectfully believed that the cited MPEP § 2173.05 (u) supports the rejection. Note that the section states, "...a trademark or trade name is used to identify a source of goods, and not the good themselves." The section further states, "If the trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does

Art Unit: 2684

not comply with the requirements of the 35 U.S.C. § 112, second paragraph” and “Thus, the use of a trademark or trade name in a claim to identify or describe a material or product would not only render a claim indefinite, but would also constitute an improper use of the trademark or trade name.”

Further note that with respect to use of protocols, Applicant’s specification makes no indication relating to the version of the protocols claimed. As standards change over time, the scope of the claim would potentially vary accordingly (as for example new 802.11 standards are now available that were not in the past, as are varying parameters, such as power, in the BLUETOOTH or IEEE 802.15 standard). Examiner does not argue that these are currently short range communication standards and that they will potentially remain as such (though as alluded to above, BLUETOOTH was revised to accommodate more power and thus greater range with a subsequent version), but more so as stated in the previous Office Action (mailed 29 March 2004) that the scope of the invention sought to be patented cannot be determined from the language of the claims (or their descriptions in the specification) as the details of these standards are changing over time.

Regarding claims 1, 25, 35, 50, 51, and 58, Applicant attempts to overcome the rejection by stating, “Campbell, at best, can temporarily communicate with a first device but cannot maintain a communication coupling with the first device because the platform is designed to ‘drift in a controlled manner.’” Further, Applicant contends, “Because the flotilla of platforms are in constant movement, by nature they cannot be positioned within communication range of a first device, while maintaining communication coupling with the first device.” Examiner respectfully disagrees with Applicant’s assertions. Note that Campbell states “Accordingly, it is

Art Unit: 2684

an object of the present invention to provide a system of inexpensive aerial platforms that can be deployed to form a communications network” (column 2, lines 60 –62) indicating that end to communications are performed. Further support of this concept seen in column 2, lines 19 –24, where “At least one of the platforms in the communications network may comprise a payload adapted according to known methods for communication with equipment located on the earth (either ground or sea-based), aboard an airborne vehicle or aboard a satellite, or adapted for other functions, such as photography or other observation” (note that the payload could be a telecommunications device, as per column 8, lines 29 –33). Examiner respectfully submits that “the drift in a controlled manner” is in relation to maintaining coverage (and thus communications), as the devices are lighter than air (starting column 2, line 66 and ending column 3, line 4) and atmospheric conditions do exist (column 2, lines 2 – 6). Hence it is respectfully believed that the references, when combined for the cited motivation, do teach or recite the claimed limitations as broadly interpreted.

In further regards to claim 25, note that Pelech was cited as teaching having a static of dynamic characteristic base upon a mobile or stationary condition of the first device (see previous Office Action mailed 29 March 2004, page 25; note further that Campbell does allude to such a concept as described in the above paragraph).

In further regards to claim 35, note that Campbell teaches of control action for each platform based on signal strength and further alludes to movement based on such measurements (starting column 8, line 62 and ending column 9, line 12 and further in column 11, lines 49 –65 and again in Figure 5 and further in column 12, lines 17 –30).

Art Unit: 2684

In further regards to claims 50, 51, and 58, note that Campbell does teach of positioning relative to devices, including other platforms (Figures 5 and 9 and for example column 2, lines 60 –62 and column 12, lines 17 –30 and further in column 4, lines 17 –27). Hence in light of the above arguments, Examiner is not persuaded by Applicant's arguments that the references, when combined for the cited motivation, do not teach or recite the claimed as broadly interpreted.

Allowable Subject Matter

2. The indicated allowability of claim 29 is withdrawn. The rejections follow below. The delay in the citing of these rejections is regretted.
3. The indicated allowability of claim 15 is withdrawn in view of the newly discovered reference(s) to Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263). Rejections based on the newly cited reference(s) follow. The delay in the citing of this art is regretted.
4. Claims 16 – 19 and 22 – 24 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Regarding claim 16, the present invention is of wherein the self-positioning wireless transceiver system comprises first and second self-positioning transceivers, the method further including the steps of positioning the first self-positioning transceiver positioning within communication range of the first device; establishing communicative coupling between the first transceiver and the first device; if the signal received from the second device is less than a first threshold, issuing a request to a second self-positioning transceiver for support; positioning the second self-positioning transceiver within communication range of the first self-positioning

Art Unit: 2684

transceiver and the first device; establishing communicative coupling between the second self-positioning transceiver and the first device; establishing communicative coupling between the second self-positioning transceiver and the first self-positioning transceiver; positioning the first self-positioning transceiver a predefined incremental distance toward the second device; and positioning the second self-positioning transceiver with respect to the first self-positioning transceiver and with respect to the first device such that the quality of a first communication signal received from the first self-positioning transceivers and the quality of a second communication signal received from the first device are approximately equal. The closest prior art, Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263), teach of wherein the self-positioning wireless transceiver system comprises first and second self-positioning transceivers, the method further including the steps of positioning the first self-positioning transceiver positioning within communication range of the first device; establishing communicative coupling between the first transceiver and the first device; if the signal received from the second device is less than a first threshold, issuing a request to a second self-positioning transceiver for support; establishing communicative coupling between the second self-positioning transceiver and the first self-positioning transceiver; and positioning the second self-positioning transceiver with respect to the first self-positioning transceiver and with respect to the first device such that the quality of a first communication signal received from the first self-positioning transceivers and the quality of a second communication signal received from the first device are approximately equal but alone or in combination with other prior art, not specifically of the combined steps of positioning the second self-positioning transceiver within communication range of the first self-positioning transceiver and the first device; establishing

Art Unit: 2684

communicative coupling between the second self-positioning transceiver and the first device; positioning the first self-positioning transceiver a predefined incremental distance toward the second device.

Claim 17 is allowed as being dependent on claim 16.

Regarding claim 18, the present invention is of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers wherein a subset of the plurality of self-positioning transceivers are communicatively coupled to create a communication link from the first device to the second device, the method further including the steps of: detecting a movement of the first device relative to the position of the second device; positioning the first self-positioning transceiver of the subset of self-positioning transceivers repositioning to remain within communication range of the first device; repositioning each of the subset of self-positioning transceivers communicatively coupling the first self-positioning transceiver to the second device with respect to a neighboring self-positioning transceiver such that the quality of each communication signal received by each of the subset of self-positioning transceivers from a neighboring self-positioning transceiver are approximately equal; if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is less than a first threshold, issuing a request to a second self-positioning transceiver for support and if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is greater than a second threshold, issuing a request to one of the subset of self-positioning transceivers to communicatively decouple itself from the first device, the second device and the other self-positioning transceivers of the subset of the positioning transceivers. The closest prior art,

Art Unit: 2684

Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263), teach of repositioning each of the subset of self-positioning transceivers communicatively coupling the first self-positioning transceiver to the second device with respect to a neighboring self-positioning transceiver such that the quality of each communication signal received by each of the subset of self-positioning transceivers from a neighboring self-positioning transceiver are approximately equal; but alone or in combination with other prior art not of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers wherein a subset of the plurality of self-positioning transceivers are communicatively coupled to create a communication link from the first device to the second device, the method further including the steps of: detecting a movement of the first device relative to the position of the second device; positioning the first self-positioning transceiver of the subset of self-positioning transceivers repositioning to remain within communication range of the first device; if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is less than a first threshold, issuing a request to a second self-positioning transceiver for support and if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is greater than a second threshold, issuing a request to one of the subset of self-positioning transceivers to communicatively decouple itself from the first device, the second device and the other self-positioning transceivers of the subset of the positioning transceivers.

Claim 19 is allowed as being dependent on claim 18.

Art Unit: 2684

Regarding claim 22, the present invention is of further including the steps of: (i) determining that a predetermined period has passed without the detection of a need to form a communication link between the first device and the second device; (ii) initiating a search for a homing signal generated from a home location; (iii) searching for the homing signal; (iv) if the homing signal is detected, following the homing signal to the home location; (v) if the homing signal cannot be detected, at least one of the plurality of self-positioning transceivers positioning itself an incremental distance away from a reference position to search for the homing signal; and (vi) repeat steps (iii) through (v) until the homing signal is detected. The closest prior art, Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263), alone or in combination with other prior art do not specifically teach of (i) determining that a predetermined period has passed without the detection of a need to form a communication link between the first device and the second device; (ii) initiating a search for a homing signal generated from a home location; (iii) searching for the homing signal; (iv) if the homing signal is detected, following the homing signal to the home location; (v) if the homing signal cannot be detected, at least one of the plurality of self-positioning transceivers positioning itself an incremental distance away from a reference position to search for the homing signal; and (vi) repeat steps (iii) through (v) until the homing signal is detected.

Claim 23 is allowed as being dependent on claim 22.

Regarding claim 24, the present invention is of, further including the steps of: (i) issuing a retrieve command to the plurality of self-positioning transceivers; (ii) each of the plurality of self-positioning transceivers positioning itself closer to a neighboring self-positioning transceiver in the approximate direction of the first device; (iii) identifying a self-positioning transceiver of

Art Unit: 2684

the plurality that is directly communicatively coupled to the first device; (iv) communicatively decoupling the identified self-positioning transceiver from the other of the plurality of self-positioning transceivers and from the first device; (v) repeat steps (ii) through (iv) until the plurality of self-positioning transceivers have been communicatively decoupled from the first device. The closest prior art, Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263), alone or in combination with other prior art do not specifically teach of further including the steps of: (i) issuing a retrieve command to the plurality of self-positioning transceivers; (ii) each of the plurality of self-positioning transceivers positioning itself closer to a neighboring self-positioning transceiver in the approximate direction of the first device; (iii) identifying a self-positioning transceiver of the plurality that is directly communicatively coupled to the first device; (iv) communicatively decoupling the identified self-positioning transceiver from the other of the plurality of self-positioning transceivers and from the first device; (v) repeat steps (ii) through (iv) until the plurality of self-positioning transceivers have been communicatively decoupled from the first device.

5. Claim 53 – 57 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Regarding claim 53, the present invention is of a method of establishing a wireless communication path between a first device and a second device, the method comprising the steps of: automatically positioning a self-positioning wireless transceiver system within communication range of a first device and a second device, the self-positioning wireless transceiver system having a plurality of self-positioning transceivers a subset of which are communicatively coupled to create a communication link from the first device to the second

Art Unit: 2684

device; establishing communicative coupling between the self-positioning wireless transceiver system and the first device; and establishing communicative coupling between the self-positioning wireless transceiver system and the second device while maintaining communicative coupling with the first device; detecting a movement of the first device relative to the position of the second device; positioning a first self-positioning transceiver of the subset of self positioning transceivers repositioning to remain within communication range of the first device; repositioning each of the subset of self-positioning transceivers communicatively coupling the first self-positioning transceiver to the second device with respect to a neighboring self-positioning transceiver such that the quality of each communication signal received by each of the subset of self-positioning transceivers from a neighboring self-positioning transceiver are approximately equal; if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is less than a first threshold, issuing a request to a second self positioning transceiver for support and if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is greater than a second threshold, issuing a request to one of the subset of self-positioning transceivers to communicatively decouple itself from the first device, the second device and the other self-positioning transceivers of the subset of self-positioning transceivers. The closest prior art, Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263), teach of a method of establishing a wireless communication path between a first device and a second device, the method comprising the steps of: automatically positioning a self-positioning wireless transceiver system within communication range of a first device and a second device, the self-positioning wireless

Art Unit: 2684

transceiver system having a plurality of self-positioning transceivers a subset of which are communicatively coupled to create a communication link from the first device to the second device; establishing communicative coupling between the self-positioning wireless transceiver system and the first device; and establishing communicative coupling between the self-positioning wireless transceiver system and the second device while maintaining communicative coupling with the first device; detecting a movement of the first device relative to the position of the second device; but alone, or in combination with other prior art, not of positioning a first self-positioning transceiver of the subset of self positioning transceivers repositioning to remain within communication range of the first device; repositioning each of the subset of self-positioning transceivers communicatively coupling the first self-positioning transceiver to the second device with respect to a neighboring self-positioning transceiver such that the quality of each communication signal received by each of the subset of self-positioning transceivers from a neighboring self-positioning transceiver are approximately equal; if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is less than a first threshold, issuing a request to a second self positioning transceiver for support and if the quality of a signal received by at least one of the subset of self-positioning transceivers from a neighboring self-positioning transceiver is greater than a second threshold, issuing a request to one of the subset of self-positioning transceivers to communicatively decouple itself from the first device, the second device and the other self-positioning transceivers of the subset of self-positioning transceivers.

Claim 54 is allowed as being dependent on claim 53.

Regarding claim 55, the present invention is of a method of establishing a wireless communication path between a first device and a second device, the method comprising the steps of: automatically positioning a self-positioning wireless transceiver system within communication range of a first device and a second device, the self-positioning wireless transceiver system comprising a plurality of communicatively coupled self-positioning transceivers; establishing communicative coupling between the self-positioning wireless transceiver system and the first device; and establishing communicative coupling between the self-positioning wireless transceiver system and the second device while maintaining communicative coupling with the first device; determining that a predetermined period has passed without the detection of a need to form a communication link between the first device and the second device using the self-positioning transceiver system and responsive thereto initiating a search for a homing signal generated from a home location, (ii) searching for the homing signal; (iii) if the homing signal is detected, having the self-positioning transceiver system follow the homing signal to the home location; (iv) if the homing signal cannot be detected, at least one of the plurality of self-positioning transceivers positioning itself an incremental distance away from a reference position to search for the homing signal; (v) repeating steps (ii.) through (iv) until the homing signal is detected; and retrieving the self-positioning transceiver system to the home location. The closest prior art Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263), teach of a method of establishing a wireless communication path between a first device and a second device, the method comprising the steps of: automatically positioning a self-positioning wireless transceiver system within communication range of a first device and a second device, the self-positioning wireless

Art Unit: 2684

transceiver system comprising a plurality of communicatively coupled self-positioning transceivers; establishing communicative coupling between the self-positioning wireless transceiver system and the first device; and establishing communicative coupling between the self-positioning wireless transceiver system and the second device while maintaining communicative coupling with the first device; but alone or in combination with other prior art not of determining that a predetermined period has passed without the detection of a need to form a communication link between the first device and the second device using the self-positioning transceiver system and responsive thereto initiating a search for a homing signal generated from a home location, (ii) searching for the homing signal; (iii) if the homing signal is detected, having the self-positioning transceiver system follow the homing signal to the home location; (iv) if the homing signal cannot be detected, at least one of the plurality of self-positioning transceivers positioning itself an incremental distance away from a reference position to search for the homing signal; (v) repeating steps (ii.) through (iv) until the homing signal is detected; and retrieving the self-positioning transceiver system to the home location

Claim 56 is allowed as being dependent on claim 55.

Regarding claim 57, the present invention is of a method of establishing a wireless communication path between a first device and a second device, the method comprising the steps of automatically positioning a self-positioning wireless transceiver system within communication range of a first device and a second device, the self-positioning wireless transceiver system comprising a plurality of communicatively coupled self-positioning transceivers; establishing communicative coupling between the self-positioning wireless transceiver system and the first device; and establishing communicative coupling between the self-positioning wireless

Art Unit: 2684

transceiver system and the second device while maintaining communicative coupling with the first device; detecting a termination of communication coupling between the first device and the second device and responsive thereto: (i) issuing a retrieve command to the plurality of self-positioning transceivers; (ii) each of the plurality of self-positioning transceivers positioning itself closer to a neighboring self-positioning transceiver in the approximate direction of the first device; (iii) identifying a self-positioning transceiver of the plurality that is directly communicatively coupled to the first device; (iv) communicatively decoupling the identified self-positioning transceiver from the other of the plurality of self-positioning transceivers and from the first device; (v) repeat steps (ii) through (iv) until the plurality of self-positioning transceivers have been communicatively decoupled from the first device; and retrieving the plurality of self-positioning transceivers. The closest prior art Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263), teach of a method of establishing a wireless communication path between a first device and a second device, the method comprising the steps of automatically positioning a self-positioning wireless transceiver system within communication range of a first device and a second device, the self-positioning wireless transceiver system comprising a plurality of communicatively coupled self-positioning transceivers; establishing communicative coupling between the self-positioning wireless transceiver system and the first device; and establishing communicative coupling between the self-positioning wireless transceiver system and the second device while maintaining communicative coupling with the first device; but alone or in combination with other prior art, not of detecting a termination of communication coupling between the first device and the second device and responsive thereto: (i) issuing a retrieve command to the plurality of self-

Art Unit: 2684

positioning transceivers; (ii) each of the plurality of self-positioning transceivers positioning itself closer to a neighboring self-positioning transceiver in the approximate direction of the first device; (iii) identifying a self-positioning transceiver of the plurality that is directly communicatively coupled to the first device; (iv) communicatively decoupling the identified self-positioning transceiver from the other of the plurality of self-positioning transceivers and from the first device; (v) repeat steps (ii) through (iv) until the plurality of self-positioning transceivers have been communicatively decoupled from the first device; and retrieving the plurality of self-positioning transceivers.

Specification

6. The disclosure is objected to because of the following informalities: “wireless transceiver system 10” (assumed to be 100 as no 10 is in the drawings). Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 9, 24, 28, 29, 37, and 59 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 9, 28 and 37, the limitation of a “... swimming mobility mechanism, and a crawling mobility mechanism...” was not specifically described the Applicant’s specification. Applicant describes different mobility mechanisms (paragraph 0036), but makes

Art Unit: 2684

no specific reference to what constitutes "... swimming mobility mechanism, and a crawling mobility mechanism..." or how such are performed with respect to the claimed invention.

Regarding claims 29 and 59, the limitation of a "... including a mobility mechanism comprising a mirco-mechanical flying insect robot," was not specifically described the Applicant's specification. Applicant describes different mobility mechanisms (paragraph 0036), but makes no specific reference to a "... including a mobility mechanism comprising a mirco-mechanical flying insect robot ..." as claimed.

Regarding claim 24, it was not understood how, "(ii) each of the plurality of self-positioning transceivers positioning itself closer to a neighboring self-positioning transceiver in the approximate direction of the first device; (ii) each of the plurality of self-positioning transceivers positioning itself closer to a neighboring self-positioning transceiver in the approximate direction of the first device; (iii) identifying a self-positioning transceiver of the plurality that is directly communicatively coupled to the first device; (iv) communicatively decoupling the identified self-positioning transceiver from the other of the plurality of self-positioning transceivers and from the first device;" as the specification states that the first device can be a mobile (paragraph 0029) and the mobility mechanism can be hovering or crawling (among other forms, paragraph 0036) and thus it was not understood where the devices would end up (assuming for instance a mobile as the first device). Appropriate clarification is required.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 40 contain the trademark/trade name "BLUETOOTH." Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or

Art Unit: 2684

product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a local area wireless connection standard and accordingly, the identification/description is indefinite.

Regarding claims 7 and 40, note that the use of "*protocols*" (for example, Bluetooth and 802.11x), protocols and standards change over time, hence, it is inappropriate to have the scope of a claim change with time. Since organizations implementing standards meet regularly and have the authority to modify standards, any connection a claim may have to these standards may vary over time. The other aspect arising from this is enablement. If the standard changes, the disclosure may no longer support the limitation. If the scope of the invention sought to be patented cannot be determined from the language of the claims, a second paragraph rejection is appropriate (*In re Wiggins*, 179 USPQ 421).

10. Regarding claim 20, the phrase "relatively" renders the claim indefinite because it is a broad term (as confusion could be over whether this was a physical path or the number of hops between source and destination). See MPEP § 2173.05(b).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2684

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1 – 15, 21, 25 – 28, 30 – 39, 41 – 52, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263).

Regarding claim 1, Pelech teaches of a method of establishing a wireless communication path between a first device and a second device (Figure 3), the method comprising the steps of: positioning wireless transceiver system to one of a static or dynamic position relative to a first device and a second device, wherein the position and the static or dynamic character of the position is determined based upon a stationary or mobile condition of the first and second devices and enhancing communication quality between the first and the second device via the wireless transceiver system (Figures 3 and 4 and column 2, lines 30 – 42 and column 6, lines 26 –36); establishing communicative coupling between the wireless transceiver system and the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 –42); and establishing communicative coupling between the wireless transceiver system and the second device while maintaining communicative coupling with the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 –42).

Pelech does not specifically teach of automatically positioning a self-positioning [wireless transceiver system] (note that the brackets are provided for clarity in language and that it is believed that these limitations have been addressed in the above cite reference; it should be noted that Pelech does make reference to the potential use of airborne vehicles, column 4, lines 35 –44 and column 6, lines 17 –22).

Art Unit: 2684

In a related art dealing with mobile communication networks, Campbell teaches of automatically positioning a self-positioning wireless transceiver system (column 2, lines 25 – 47 and column 7, lines 36 –58).

It would have been obvious to one skilled in the art at the time of invention to have included into Pelech's mobile and dynamic wireless telecommunications topology, Campbell's mobile communication equipment, for the purposes of providing an alternative, robust, and low cost communication stations, as taught by Campbell.

Regarding claim 2, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Campbell further teaches of wherein the self-positioning wireless transceiver system comprises a first self-positioning transceiver (column 2, lines 25 – 47 and column 7, lines 36 –58).

Regarding claim 3, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Campbell further teaches of wherein the self-positioning wireless transceiver system comprises first and second self-positioning transceivers (column 2, lines 25 – 47 and column 7, lines 36 –58).

Regarding claim 4, Pelech in view of Campbell teach all the claimed limitations as recited in claim 3. Both Pelech and Campbell teach of further including a step of transmitting data from the first self-positioning transceiver to the second self-positioning transceiver via at least one of radio frequency, infrared frequency and ultrasonic frequency communication channels (Pelech: column 2, lines 30 –37 and Campbell: column 2, lines 47 –53).

Regarding claim 5, Pelech in view of Campbell teach all the claimed limitations as recited in claim 4. Pelech and Campbell further teach of wherein the step of transmitting data

Art Unit: 2684

further includes transmitting self-positioning transceiver operational data via a control channel and transmitting communication data via a payload channel (Pelech: column 7, lines 24 – 50 and Campbell: column 7, lines 36 – 58 and column 7, lines 16 – 25).

Regarding claim 6, Pelech in view of Campbell teach all the claimed limitations as recited in claim 4. Both Pelech and Campbell teach of wherein the step of transmitting data further includes transmitting at least one of voice data, text data, image data, video data and audio data (Pelech: column 6, lines 29 – 36 and column 7, lines 25 – 35 and Campbell: column 1, lines 25 – 30 and column 2, lines 13 – 18).

Regarding claims 7 and 40, Pelech in view of Campbell teach all the claimed limitations as recited in claims 1 and 35. Pelech and Campbell teach of the self-positioning transceiver system (Pelech: column 7, lines 24 – 50 and Campbell: column 7, lines 36 – 58 and column 7, lines 16 – 25). However, Pelech in view of Campbell do not explicitly show that the self-positioning transceiver system operates in accordance with one of Bluetooth, IEEE 802.11, IEEE 802.11 a, IEEE 802.11 b and IEEE 802.11 g industry specifications. Bluetooth, IEEE 802.11, IEEE 802.11 a, IEEE 802.11 b and IEEE 802.11 g industry specifications in a wireless system is a matter of system preference and is very well known in the art, thus the Examiner takes “Official Notice” as such. Therefore it would have been obvious to one skilled in the art, at the time of invention, to combine Pelech and Campbell with either the Bluetooth, IEEE 802.11, IEEE 802.11 a, IEEE 802.11 b and IEEE 802.11 g industry specifications, in order for the mobile communications between units.

Regarding claim 8, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Both Pelech and Campbell teach of wherein the first self-positioning

Art Unit: 2684

transceiver further comprises a mobility mechanism (Pelech: column 4, lines 35 –44 and column 6, lines 14 –22 and Campbell: starting column 5, line 64 and ending column 6, line 27).

Regarding claim 9, Pelech in view of Campbell teach all the claimed limitations as recited in claim 8. Both Pelech and Campbell teach of wherein the mobility mechanism comprises one of a flying mobility mechanism, a hovering mobility mechanism, a swimming mobility mechanism, and a crawling mobility mechanism (Pelech: column 4, lines 35 –44 and column 6, lines 14 –22 and Campbell: starting column 5, line 64 and ending column 6, line 27).

Regarding claim 10, Pelech in view of Campbell teach all the claimed limitations as recited in claim 8. Both Pelech and Campbell teach of wherein the mobility mechanism comprises one of a land-craft, aircraft and watercraft that is responsive to a wireless communication signal (Pelech: column 4, lines 35 –44 and column 6, lines 14 –22 and Campbell: starting column 5, line 64 and ending column 6, line 27).

Regarding claim 11, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Both Pelech and Campbell teach of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers, the method further including a step of deploying the plurality of self-positioning transceivers in a pre-defined configuration (Pelech: column 6, lines 24 –36 and Campbell: starting column 6, line 63 and ending column 7, line 15).

Regarding claim 12, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Both Pelech and Campbell teach of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers, the method further including a step of deploying the plurality of self-positioning transceivers in a pre-defined swarm

Art Unit: 2684

configuration (Pelech: column 6, lines 24 –36 and Campbell: starting column 6, line 63 and ending column 7, line 15).

Regarding 13, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Both Pelech in view of Campbell teach of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers, the method further including a step of deploying the plurality of self-positioning transceivers to search for a signal transmitted by the second device in pre-defined searching pattern (Pelech: column 6, lines 24 –36 and Campbell: starting column 6, line 63 and ending column 7, line 15 and column 10, lines 46 – 67).

Regarding claim 14, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Pelech in view of Campbell further teach of wherein the self-positioning wireless transceiver system comprises first and second pluralities of self-positioning transceivers, the method further including the steps of employing the first plurality of self-positioning transceivers to communicatively couple the first device to the second device and employing the second plurality of self-positioning transceivers to create a second communication path adapted to communicatively couple the first device to the second device (Pelech: column 6, lines 40 – 55 and Campbell: starting column 9, line 64 and ending column 10, line 10).

Regarding claim 15, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Campbell further teaches of wherein the self-positioning wireless transceiver system comprises first, second and third self-positioning transceivers, the method further including the step of the second self-positioning transceiver automatically positioning itself with respect to the first and third self-positioning transceivers such that the quality of a first

Art Unit: 2684

communication signal received from the first self-positioning transceivers and the quality of a second communication signal received from the third self-positioning transceiver are approximately equal (starting column 8, line 62 and ending column 9, line 12; note that as stated, the EM wave experience free space propagation and hence with each transceiver pair being the same, distances between the paths would have to be the same from free space calculations).

Regarding claim 21, Pelech in view of Campbell, teach all the claimed limitations as recited in claim 1. Pelech further teaches of wherein the self-positioning wireless transceiver system comprises a plurality of communicatively coupled self-positioning transceivers further including the steps of: detecting a termination of communicative coupling between the first device and the second device; and retrieving the plurality of self-positioning transceivers (column 2, lines 30 –36 and column 6, lines 23 –36).

Regarding claim 25, Pelech teaches of a method of increasing the communication range of a first device (Figure 3), the method comprising the steps of providing a plurality of transceivers, each of the plurality of transceivers including a mobility mechanism adapted to enable each of the plurality of transceivers to position itself (Figures 3 and 4 and column 2, lines 30 – 42 and column 6, lines 26 –36); each of the plurality of transceivers positioning itself to a position with respect to the first device, the position having a static or dynamic characteristic based upon a mobile or stationary condition of the first device and enhancing a quality of a communicative coupling with the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 –42); and establishing the communicative coupling between each of the plurality of transceivers and the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 –42).

Art Unit: 2684

Pelech does not specifically teach of automatically positioning a self-positioning [wireless transceiver system] (note that the brackets are provided for clarity in language and that it is believed that these limitations have been addressed in the above cite reference; it should be noted that Pelech does make reference to the potential use of airborne vehicles, column 4, lines 35 –44 and column 6, lines 17 –22).

In a related art dealing with mobile communication networks, Campbell teaches of automatically positioning a self-positioning wireless transceiver system (column 2, lines 25 – 47 and column 7, lines 36 –58).

It would have been obvious to one skilled in the art at the time of invention to have included into Pelech's mobile and dynamic wireless telecommunications topology, Campbell's mobile communication equipment, for the purposes of providing an alternative, robust, and low cost communication stations, as taught by Campbell.

Regarding claim 26, Pelech in view of Campbell teach all the claimed limitations as recited in claim 25. Pelech further teaches of further including the steps of each of a first subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of the first device (Figures 3 and 4 and column 6, lines 41 – 55 and column 7, lines 1 –16); establishing communicative coupling between the first subset of the plurality of self-positioning transceivers and the first device (Figures 3 and 4 and column 6, lines 41 – 55 and column 7, lines 1 –16); each of a second subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of at least one of the first subset of the plurality of self-positioning transceivers (Figures 3 and 4 and column 6, lines 41 – 55 and column 7, lines 1 –16); and establishing communicative coupling between each of

Art Unit: 2684

the second subset of the plurality of self-positioning transceivers and the first device via at least one of the first subset of the plurality of self-positioning transceivers (Figures 3 and 4 and column 6, lines 41 – 55 and column 7, lines 1 – 16).

Regarding claim 27, Pelech in view of Campbell teach all the claimed limitations as recited in claim 26. Campbell further teaches of wherein the step of the first subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of one of the first device further includes the steps of a first self-positioning transceiver receiving a first communication signal directly from a first neighboring self-positioning transceiver (Figures 1, 2, and 5 and starting column 6, line 63 and ending column 7, line 15); the first self-positioning transceiver receiving a second communication signal directly from a second neighboring self-positioning transceiver (Figures 1, 2, and 5 and starting column 6, line 63 and ending column 7, line 15); the first self-positioning transceiver automatically positioning itself with respect to the first and second neighboring self-positioning transceivers such that the quality of the communication signals received from the first and second neighboring self-positioning transceivers are approximately equal (starting column 8, line 62 and ending column 9, line 12; note that as stated, the EM wave experience free space propagation and hence with each transceiver pair being the same, distances between the paths would have to be the same from free space calculations).

Regarding claim 28, Pelech in view of Campbell teach all the claimed limitations as recited in claim 25. Both Pelech and Campbell teach of wherein the mobility mechanism comprises one of a flying mobility mechanism, a hovering mobility mechanism, a swimming

Art Unit: 2684

mobility mechanism, and a crawling mobility mechanism (Pelech: column 4, lines 35 –44 and column 6, lines 14 –22 and Campbell: starting column 5, line 64 and ending column 6, line 27).

Regarding claim 30, Pelech in view of Campbell teach all the claimed limitations as recited in claim 25. Pelech further teaches of wherein the plurality of self-positioning transceivers includes a first subset of self-positioning transceivers and the method further includes the step of communicatively coupling the first device to a second device via the first subset of communicatively coupled self-positioning transceivers (Figures 3 and 4 and column 7, lines 1 –16).

Regarding claim 31, Pelech in view of Campbell teach all the claimed limitations as recited in claim 30. Pelech in view of Campbell further teaches of wherein the plurality of self-positioning transceivers includes a second subset of self-positioning transceivers and the method further includes the step of creating a first alternate communication path between the first device and the second device via the second subset of communicatively coupled self-positioning transceivers (Pelech: column 6, lines 41 –55; Campbell: starting column 9, line 64 and ending column 10, line 10).

Regarding claim 32, Pelech in view of Campbell teach all the claimed limitations as recited in claim 31. Pelech in view of Campbell further teaches of wherein if at least one of the first subset of self-positioning transceivers experiences a malfunction, establishing communicative coupling between the first device and the second device via the first alternate communication path (Pelech: column 6, lines 41 –55; Campbell: starting column 9, line 64 and ending column 10, line 10).

Regarding claim 33, Pelech in view of Campbell teach all the claimed limitations as recited in claim 30. Pelech further teaches of wherein the plurality of self-positioning transceivers includes a second subset of self-positioning transceivers and the method further includes the step of if the strength of a communication signal received by one of the first and second devices falls below a predefined threshold, the second subset of the communicatively coupled self-positioning transceivers automatically positioning themselves to maintain communicative coupling between the first device and the second device (Pelech: column 6, lines 41 –55; as in a handover).

Regarding claim 34, Pelech in view of Campbell teach all the claimed limitations as recited in claim 33. Pelech further teaches of wherein the plurality of self-positioning transceivers includes a third subset of self-positioning transceivers and the method further includes the step of the third subset of the communicatively coupled self-positioning transceivers automatically positioning themselves to create a second alternate communication path between the first device and the second device (Figures 3 and 4 and column 6, lines 7 –14).

Regarding claim 35, Pelech teaches of a transceiver adapted to provide communicatively coupling between a first device and a second device (Figure 3), the transceiver system comprising: a transmitter (Figures 3 and 4 and column 2, lines 30 – 42 and column 6, lines 26 – 36); a receiver (Figures 3 and 4 and column 2, lines 30 – 42 and column 6, lines 26 –36); a mobility mechanism adapted to carry the transmitter and the receiver (Figures 3 and 4 and column 2, lines 30 – 42 and column 6, lines 26 –36 and column 4, lines 35 –44 and column 6, lines 16 –22) and based upon a mobile or stationary condition of one of the first and the second

Art Unit: 2684

device (Figures 3 and 4 and column 2, lines 30 – 42 and column 6, lines 26 –36 and column 4, lines 35 –44 and column 6, lines 16 –22).

Pelech does not specifically teach of a processor communicatively coupled to the transmitter, the receiver and the mobility mechanism, the processor being adapted to operate in accordance with a computer program embodied on a computer-readable medium, the computer program comprising: a first routine that directs processing of communication data received from the first device via the receiver; a second routine that directs transmission of the communication data received from the first device to the second device via the transmitter; and a third routine that issues a position command to the mobility mechanism based on the quality of a signal received by the receiver from the first device and based on the quality of a signal received by the receiver from the second device; and based upon a mobile or stationary condition of one of the first and the second device and automatically positioning a self-positioning [wireless transceiver system] (note that the brackets are provided for clarity in language and that it is believed that these limitations have been addressed in the above cite reference; it should be noted that Pelech does make reference to the potential use of airborne vehicles, column 4, lines 35 –44 and column 6, lines 17 –22).

In a related art dealing with mobile communication networks, Campbell teaches of a processor communicatively coupled to the transmitter, the receiver and the mobility mechanism, the processor being adapted to operate in accordance with a computer program embodied on a computer-readable medium (Figure 6), the computer program comprising: a first routine that directs processing of communication data received from the first device via the receiver (Figure 6 and column 7, lines 26 –57); a second routine that directs transmission of the

Art Unit: 2684

communication data received from the first device to the second device via the transmitter (Figure 6 and column 7, lines 26 –57); and a third routine that issues a position command to the mobility mechanism based on the quality of a signal received by the receiver from the first device and based on the quality of a signal received by the receiver from the second device (Figure 6 and column 7, lines 26 –57 and column 9, lines 5 –12); and automatically positioning a self-positioning wireless transceiver system (column 2, lines 25 – 47 and column 7, lines 36 – 58).

It would have been obvious to one skilled in the art at the time of invention to have included into Pelech's mobile and dynamic wireless telecommunications topology, Campbell's mobile communication equipment, for the purposes of providing an alternative, robust, and low cost communication stations, as taught by Campbell.

Regarding claim 36, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Campbell teach (and Pelech) teach of a transmitter and receiver (Campbell: Figure 6). However, Pelech in view of Campbell do not explicitly show the combination of the transmitter and the receiver comprise a transceiver. Combining a transmitter and receiver into one discrete element or chip is a matter of system preference and is very well known in the art, thus the Examiner takes "Official Notice" as such. Therefore it would have been obvious to one skilled in the art, at the time of invention, to combine Pelech and Campbell's transmitter and receiver to create a transceiver, in order for the mobile communications between units to be performed (in order to save space and share common elements, like the antenna or local oscillators, for example).

Regarding claim 37, Pelech in view of Campbell teach all the claimed limitations as recited in claim 37. Both Pelech and Campbell teach of wherein the mobility mechanism comprises one of a flying mechanism, a hovering mechanism, a swimming mechanism and a crawling mechanism. (Pelech: column 4, lines 35 –44 and column 6, lines 14 –22 and Campbell: starting column 5, line 64 and ending column 6, line 27).

Regarding claim 38, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Campbell further teaches of wherein the mobility mechanism comprises one of a land-craft, aircraft and watercraft that is responsive to a wireless communication signal (starting column 5, line 64 and ending column 6, line 27 and column 7, lines 36 –55).

Regarding claim 39, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Both Pelech and Campbell teach of wherein the transmitter is adapted to transmit communication data to one of a source device, a destination device and a neighboring self-positioning transceiver (Pelech: Figures 3 and 4 and column 2, lines 30 – 37 and Campbell: Figures 1, 2, and 5 and starting column 6, line 63 and ending column 7, line 15).

Regarding claim 41, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Both Pelech and Campbell teach of wherein the receiver is adapted to receive communication data from one of a source device, a destination device and a neighboring self-positioning transceiver (Pelech: Figures 3 and 4 and column 2, lines 30 – 37 and Campbell: Figures 1, 2, and 5 and starting column 6, line 63 and ending column 7, line 15).

Regarding claim 42, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Campbell further teaches of further including a random access memory for maintaining self-positioning transceiver operational data (column 9, lines 39 –59).

Regarding claim 43, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Pelech in view of Campbell further teach of further comprising a fourth routine that issues the position command to the mobility mechanism in accordance with a pre-defined search pattern (Pelech: column 6, lines 24 –36 and Campbell: starting column 6, line 63 and ending column 7; line 15 and column 10, lines 46 –67).

Regarding claim 44, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Pelech and Campbell further teach of wherein the transmitter transmits self-positioning transceiver operational data to a neighboring self-positioning transceiver via a control channel and communication packet data via a payload channel to one of a source device, a destination device and a neighboring self-positioning transceiver (Pelech: column 7, lines 24 –50 and Campbell: column 7, lines 36 –58 and column 7, lines 16 –25).

Regarding claim 45, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Pelech and Campbell further teach of wherein the transmitter is adapted to transmit communication data via at least one of radio frequency, infrared frequency and ultrasonic frequency communication channels (Pelech: column 2, lines 30 –42 and Campbell: column 1, lines 20 –30 and column 2, lines 12 –19).

Regarding claim 46, Pelech in view of Campbell teach all the claimed limitations as recited in claim 35. Campbell further teaches of further including a fourth routine that directs a periodic monitoring of the communication link quality between the self-positioning transceiver and a neighboring self-positioning transceiver (column 9, lines 7 –12).

Regarding claim 47, Pelech in view of Campbell teach all the claimed limitations as recited in claim 46. Campbell further teaches of further including a fifth routine that maintains

Art Unit: 2684

an aggregate communication link quality based on communication link quality data received from a plurality of self-positioning transceivers, the plurality of self-positioning transceivers being communicatively coupled to the self-positioning transceiver (column 9, lines 6 – 12).

Regarding claim 48, Pelech in view of Campbell teach all the claimed limitations as recited in claim 47. Campbell further teaches of further including a sixth routine that issues a command to the mobility mechanism to reposition the self positioning transceiver closer to the neighboring self-positioning transceiver if the communication link quality between the self-positioning transceiver and the neighboring self-positioning transceiver falls below the aggregate communication link quality by a pre-defined threshold (column 9, lines 6 – 12 and starting column 10, line 60 and ending column 11, line 4).

Regarding claim 49, Pelech in view of Campbell teach all the claimed limitations as recited in claim 47. Campbell teaches of further including a sixth routine that issues a command to the mobility mechanism to reposition the self-positioning transceiver further away from the neighboring self-positioning transceiver if the communication link quality between the self-positioning transceiver and the neighboring self-positioning transceiver exceeds the aggregate communication link quality by a pre-defined threshold (column 9, lines 6 – 12 and starting column 10, line 60 and ending column 11, line 4).

Regarding claim 50, Pelech teaches of a method of establishing a wireless communication path between a first device and a second device (Figure 3), the method comprising the steps of: establishing communicative coupling between the wireless transceiver system and the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 – 42); and establishing communicative coupling between the wireless transceiver system and the

Art Unit: 2684

second device while maintaining communicative coupling with the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 – 42).

Pelech does not specifically teach of automatically positioning a self-positioning [wireless transceiver system] (note that the brackets are provided for clarity in language and that it is believed that these limitations have been addressed in the above cite reference; it should be noted that Pelech does make reference to the potential use of airborne vehicles, column 4, lines 35 – 44 and column 6, lines 17 – 22) and automatically positioning a self-positioning wireless transceiver system, the self-positioning wireless transceiver system including first, second and third self-positioning wireless transceivers, relative to a first device and a second device such that the second self-positioning wireless transceiver is automatically positioned with respect to the first and third self-positioning transceivers such that the quality of a first communication signal received from the first self-positioning transceivers and the quality of a second communication signal received from the third self-positioning transceiver are approximately equal.

In a related art dealing with mobile communication networks, Campbell teaches of automatically positioning a self-positioning wireless transceiver system (column 2, lines 25 – 47 and column 7, lines 36 – 58) and automatically positioning a self-positioning wireless transceiver system, the self-positioning wireless transceiver system including first, second and third self-positioning wireless transceivers, relative to a first device and a second device such that the second self-positioning wireless transceiver is automatically positioned with respect to the first and third self-positioning transceivers such that the quality of a first communication signal received from the first self-positioning transceivers and the quality of a second communication

signal received from the third self-positioning transceiver are approximately equal (starting column 8, line 62 and ending column 9, line 12; note that as stated, the EM wave experience free space propagation and hence with each transceiver pair being the same, distances between the paths would have to be the same from free space calculations).

It would have been obvious to one skilled in the art at the time of invention to have included into Pelech's mobile and dynamic wireless telecommunications topology, Campbell's mobile communication equipment, for the purposes of providing an alternative, robust, and low cost communication stations, as taught by Campbell.

Regarding claim 51, Pelech teaches of a method of establishing a wireless communication path between a first device and a second device (Figures 3 and 4), the method comprising the steps of: the wireless transceiver system having first and second transceivers, within communication range of a first device and a second device, such that the first transceiver is within communication range of the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 – 42); establishing communicative coupling between the first wireless transceiver and the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 – 42); and establishing communicative coupling between the wireless transceiver system and the second device while maintaining communicative coupling with the first device (Figures 3 and 4 and column 2, lines 30 – 42 and column 5, lines 27 – 42).

Pelech does not specifically teach of automatically positioning a self-positioning [wireless transceiver system] (note that the brackets are provided for clarity in language and that it is believed that these limitations have been addressed in the above cite reference; it should be noted that Pelech does make reference to the potential use of airborne vehicles, column 4, lines

Art Unit: 2684

35 –44 and column 6, lines 17 –22) and the signal received from the second device is less than a first threshold, issuing a request to the second self-positioning transceiver for support and positioning the second self-positioning transceiver within communication range of the first self-positioning transceiver and the first device.

In a related art dealing with mobile communication networks, Campbell teaches of automatically positioning a self-positioning wireless transceiver system (column 2, lines 25 – 47 and column 7, lines 36 –58) and the signal received from the second device is less than a first threshold, issuing a request to the second self-positioning transceiver for support and positioning the second self-positioning transceiver within communication range of the first self-positioning transceiver and the first device (Figure 5 and starting column 8, line 62 and ending column 9, line 12 and starting column 10, line 60 and ending column 11, line 4).

It would have been obvious to one skilled in the art at the time of invention to have included into Pelech's mobile and dynamic wireless telecommunications topology, Campbell's mobile communication equipment, for the purposes of providing an alternative, robust, and low cost communication stations, as taught by Campbell.

Regarding claim 52, Pelech in view of Campbell teach all the claimed limitations as recited claim 51. Campbell further teaches of wherein the first threshold is one of a primary predefined threshold, a pre-defined backup threshold and a dynamically determined threshold (Figure 5 and starting column 8, line 62 and ending column 9, line 12 and starting column 10, line 60 and ending column 11, line 4).

Regarding claim 58, Pelech teaches of a method of increasing the communication range of a first device (Figures 3 and 4), the method comprising the steps of providing a plurality of

Art Unit: 2684

transceivers (Figures 3 and 4), each of the plurality of transceivers including a mobility mechanism (column 4, lines 35 –44 and column 6, lines 14 –22); each of a first subset of the plurality of transceivers positioning itself within communication range of the first device by (column 2, lines 30 –43 and column 6, lines 24 –36): (i) a first transceiver of the first subset of the plurality of transceivers receiving a first communication signal directly from first neighboring self-positioning transceiver (Figures 3 and 4 and column 7, lines 1 –17 and Table 1 and starting column 5, line 51 and ending column 6, line 14); (ii) the first transceiver receiving a second communication signal directly from a second neighboring transceiver of the first subset of the plurality of transceivers (Figures 3 and 4 and column 7, lines 1 –17 and Table 1 and starting column 5, line 51 and ending column 6, line 14); establishing communicative coupling between each of the second subset of the plurality transceivers and the first device via at least one of the first subset of the transceivers (Figures 3 and 4 and column 7, lines 1 –17 and Table 1 and starting column 5, line 51 and ending column 6, line 14 and column 2, lines 30 – 43).

Pelech does not specifically teach of each of the plurality of self-positioning transceivers including a mobility mechanism adapted to enable each of the plurality of self-positioning transceivers to automatically position itself; (iii) the first self-positioning transceiver automatically positioning itself with respect to the first and second neighboring self-positioning transceivers such that the quality of the communication signals received from the first and second neighboring self-positioning transceivers are approximately equal; and each of a second subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of at least one of the first subset of the plurality of self-positioning transceivers; and establishing communicative coupling between each of the second subset of the

Art Unit: 2684

plurality of self-positioning transceivers and the first device via at least one of the first subset of the plurality of self-positioning transceivers.

In a related art dealing with mobile communication networks, Campbell teaches of each of the plurality of self-positioning transceivers including a mobility mechanism adapted to enable each of the plurality of self-positioning transceivers to automatically position itself (column 2, lines 25 – 47 and column 7, lines 36 –58); (iii) the first self-positioning transceiver automatically positioning itself with respect to the first and second neighboring self-positioning transceivers such that the quality of the communication signals received from the first and second neighboring self-positioning transceivers are approximately equal (starting column 8, line 62 and ending column 9, line 12; note that as stated, the EM wave experience free space propagation and hence with each transceiver pair being the same, distances between the paths would have to be the same from free space calculations); and each of a second subset of the plurality of self-positioning transceivers automatically positioning itself within communication range of at least one of the first subset of the plurality of self-positioning transceivers (Figure 5 and starting column 6, line 63 and ending column 7, line 15 and starting column 8, line 62 and ending column 9, line 12 and starting column 10, line 60 and ending column 1, line 5); and establishing communicative coupling between each of the second subset of the plurality of self-positioning transceivers and the first device via at least one of the first subset of the plurality of self-positioning transceivers (Figures 1, 2, 5 and starting column 6, line 63 and ending column 7, line 15 and starting column 8, line 62 and ending column 9, line 12 and starting column 10, line 60 and ending column 1, line 5).

It would have been obvious to one skilled in the art at the time of invention to have included into Pelech's mobile and dynamic wireless telecommunications topology, Campbell's mobile communication equipment, for the purposes of providing an alternative, robust, and low cost communication stations, as taught by Campbell.

13. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pelech et al (Pelech, US Patent No. 6,243,585) in view of Campbell (Campbell, US Patent No. 6,167,263) as applied to claim 1 above, and further in view of Richetta et al. (Richetta, US Patent No. 5,499,237).

Regarding claim 20, Pelech in view of Campbell teach all the claimed limitations as recited in claim 1. Pelech in view of Campbell does not specifically teach of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers wherein the plurality of self-positioning transceivers are communicatively coupled to create a communication path between the first device and the second device, the method further including the steps of: detecting that the configuration of the plurality of communicatively coupled self-positioning transceivers is in a crossover configuration; identifying a relatively shorter communication path defined by a subset of the plurality of self-positioning transceivers; and issuing a command to the plurality of self-positioning transceivers that are not a member of the subset to communicatively decouple themselves from the first device, the second device and the subset of the plurality of self-positioning transceivers.

In a related art dealing with satellite repeaters, Richetta teaches of wherein the self-positioning wireless transceiver system comprises a plurality of self-positioning transceivers wherein the plurality of self-positioning transceivers are communicatively coupled to create a

Art Unit: 2684

communication path between the first device and the second device, the method further including the steps of: detecting that the configuration of the plurality of communicatively coupled self-positioning transceivers is in a crossover configuration (column 4, lines 7 – 34 and column 5, lines 15 – 30); identifying a relatively shorter communication path defined by a subset of the plurality of self-positioning transceivers (column 9, lines 4 – 30); and issuing a command to the plurality of self-positioning transceivers that are not a member of the subset to communicatively decouple themselves from the first device, the second device and the subset of the plurality of self-positioning transceivers (column 6, lines 1 – 2 and starting column 6 line 58 and ending column 7 line 7; note that a gateway and base station can perform the same functions, as is known in the art).

It would have been obvious to one skilled in the art at the time of invention to have included into Pelech and Campbell's mobile and dynamic wireless telecommunications topology mobile, Richetta's hopping table, for the purposes of reducing transit time of the data packet through the system, as taught by Richetta.

Citation of Pertinent Prior Art

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Inventor	Publication	Number	Disclosure
Simon et al.	US Patent	5,530,909	Method for Radio Transmitting Information Using Aircrafts as Open Transmission Relays
Seligsohn et al.	European Patent Application	EP 711,476	Sub-Orbital, High Altitude Communications System
Priest et al.	US Patent	6,047,160	Transportable Bases Station for a Trunked Radio Communication System

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanmay S Lele whose telephone number is (703) 305-3462. The examiner can normally be reached on 9 - 6:30 PM Monday – Thursdays and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on (703) 308-7745. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Art Unit: 2684

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Tanmay S Lele
Examiner
Art Unit 2684


NAY MAUNG
SUPERVISORY PATENT EXAMINER

tsl
October 13, 2004